

Appl. No. 10/708,619  
Amdt. dated July 07, 2005  
Reply to Office action of April 20, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

5 Claim 1 (cancelled).

Claim 2 (currently amended): ~~The lumped-element transmission line of claim 1—A~~  
lumped-element transmission line formed in a multi-layered substrate comprising:

10 ~~wherein the~~ a first inductor is formed on a fourth layer of the multi-layered substrate;  
~~the~~ a second inductor is formed on a third layer of the multi-layered substrate and is  
electrically connected to the first inductor in series through a first via penetrating the  
substrate; ~~and the~~  
15 a first capacitor comprises comprising two plates formed on a second layer and a first  
layer of the multi-layered substrate, ~~in which~~ wherein the plate formed on the second  
layer is connected to ground and the plate formed on the first layer is connected to the  
first via; and  
a positive mutual inductance formed between the first inductor and the second inductor  
for improving frequency response of the lumped-element transmission line wherein the  
positive mutual inductance equals to a first value.

20

Claim 3 (original): The lumped-element transmission line of claim 2 wherein the first  
capacitor is shunt-connected to a second capacitor which comprises two plates formed  
on a fifth layer and a sixth layer of the multi-layered substrate, in which the plate  
formed on the fifth layer is connected to ground and the plate formed on the sixth layer  
25 is connected to the first via.

Claim 4 (original): The lumped-element transmission line of claim 3 wherein the first and

Appl. No. 10/708,619  
Amdt. dated July 07, 2005  
Reply to Office action of April 20, 2005

second capacitors sandwich the first and second inductors.

Claim 5-8 (cancelled).

5 Claim 9 (currently amended): The lumped-element transmission line of claim  $\pm 2$  wherein  
spirals of the first and second inductors are rectangular, circular, or octagonal in  
shape.

10 Claim 10 (currently amended): The lumped-element transmission line of claim  $\pm 2$   
wherein the first value is according to an applied frequency range and values of the  
first inductor, the second inductor, and the first capacitor.

15 Claim 11 (currently amended): The lumped-element transmission line of claim  $\pm 2$   
wherein the first value is according to shapes of and relative distance between the first  
inductor and the second inductor so that the mutual inductance equals the first value.

20 Claim 12 (currently amended): The lumped-element transmission line of claim  $\pm 2$   
wherein at least one inductor is formed on a plurality of layers of the multi-layered  
substrate.

Claim 13 (cancelled).

25 Claim 14 (new): A method of controlling attenuation in a lumped-element transmission  
line formed in a multi-layered substrate, the method comprising:  
widening an applicable frequency range of the lumped-element transmission line;  
adjusting a mutual inductance to a designed positive value according to appropriate  
shapes of inductors; and  
determining the mutual inductance according to frequency a response of the transmission

Appl. No. 10/708,619  
Amdt. dated July 07, 2005  
Reply to Office action of April 20, 2005

line.